INDEX TO VOL. XLVIII.

January 2 to June 16, 1888.

A.

Arc Lamps, Illuminating Power of 8
Atmospheric Electricity, Observations on 100
*Apparatus for Lowering or Lifting Pipe in Trenches 104
*Arvine's Hydrocarbon Burner 107
Address of President, New England Association 136
Articles of Agreement and Preamble, New England Association, as Amended 136
Appointment of Special Committees: New England Association, 137; Ohio Association, 213; Western Association, 347, 436
Address of President, Ohio Association, 214; Western Association 343
Allyn, H. A., on the Introduction of High Candle Power Burners 137
Ammonia Liquor, New way of Utilizing, by C. J. R. Humphreys 145
Automatic Gas Meter 207
*Anti-Sealing Dip-Pipe and Sealing Cup, the Lindsley 209
Alexander, J. W., on Methods of Inducing Non-Consumers to Use Gas 221
Ascension Pipes, Stoppages of, by E. J. Barnfield 310
*Arc System, the Waterhouse 338
Air Supply to Boiler Furnaces 347
Arc Electric Lighting, the Cost of, by C. M. Keller 386
*Accounts of Gas Companies, by J. D. Thompson 426

B.

*Blowpipe, the Lee Gas 4
Barrett, Prof. J. P., on Proper Insulation and Installation 37
*Brock's Chain Wrench 39
*Buoy, a Self-Luminous 72
*Boore's Apparatus for Lowering or Lifting Pipes in Trenches 104
Bribery and Corruption 131
Brazing or Welding by Coal Gas 131
Burners, the Introduction of High Candle Power, by H. A. Allyn 137
Benson, Col. F. S., on Experiences in the Purifying Room 179
Brayton, David, *in memoriam*, New England Association 179
Bartol, B. H., Obituary Mention 184
Beverly, Mass., Result of the Petroleum Fuel Oil Tests at Salem Pumping Station 271
Barnfield, E. J., on Stoppages in Ascension Pipes 310
Boiler Furnaces, Air Supply to 347
*Box, a Paradoxical, by B. E. Chollar 383
Barker, F. L., Gas Commissioner, Welcomed by Western Association 384
Burners, Incandescent Gas, by E. Lindsley 424
Bierce, F., on Half-Depth Regenerative Furnaces 429

C.

Conductivity of Glass, a Note on 9
Cherill, N. K., on Incandescent Lamps 9
Coke, Fifty Years' Progress in the Manufacture of 35
Coal Liming Process, Paper on the, R. P. Spice 36
*Chain Wrench, the Brock 39
Cost of Electric and Gas Lighting, Comparisons on the, by S. Watts 44
Coal Trade, the English, 1887 72
Coke and Gas, Warming Houses by Means of 74
Cannel, the Jellico 100
Coal Gas, the Light Giving Properties of 102
*Cummings' Hydrocarbon Oil Burner 104
Cleveland (O.), Decision of the Cuyahoga County Circuit Court in the Matter of Regulating Gas Rates 105
Coal Distillation, L. T. Wright on 131
Coal Gas for Brazing or Welding 131
Candle Power and Illumination, Report of Committee on, New England Association 171
*Coal Tar and the Walker Tar Extractor, C. A. Gerdenier's Experience with 176
Crude Lima Oil for Carburetting Water Gas, by G. H. Christian, Jr. 215
Christian, G. H. Jr., as above 215
Cost of Gas Stoves and Engines, by E. C. Gwyn 223
Contracts with Cities, the Legality of Making More than Yearly, by H. Wilkiemeyer 256
Columbus, Ohio, an Experience at 259
Choked Stand-Pipes, an Experience with, by M. Coombs, Jr. 266
Coombs, M. Jr., as above 266
Critchlow, J. M., on Fuel Gas 270
Candle, the Standard, Vagaries of 296
Carbonic Oxide, Poisonous Properties of 296
Consumption of Coal Gas, the Effects of Natural Gas on, by E. B. Philipp 308

C.—*Continued.*

Charter of the St. Louis Gas, Fuel and Power Company: Has it been Violated? 338
Closed Vessels, the Purification of Illuminating Gas in, by F. Egner 377
*Chollar, B. E., on a Paradoxical Box 383
Clark, W., on Fuel Gas 379
*Claus Process of Purification in Closed Vessels, by J. Gimper 384
Cost of Electric Arc Lighting, by C. M. Keller 386
Change in Title of Ohio Association, Proposition to make a, 213; do., Western Association 290
Combustion of Fuel in Steam Boiler and other Furnaces 391
Calcimine and Its Varied Tints 418
Correspondence, Special English 9, 73, 131, 207, 296, 372
Committees, Composition, Class, etc., of the Various Associations: New England, Membership, 135; Visitors, 135 Special, 137; President's Address, 143; Candle Power and Illumination, 171; Ohio, Membership, 213; Special, 213; Standard Meter Union, 213; Western, Membership, 343; President's Address, 346; Special, 347; Arrangements, '89 Meeting, 436; Permanent Badge 436

CORRESPONDENCE—
Comparisons on Cost of Electric and Gas Lighting, S. Watts 44
Leakage Figure, What should a Fair One be? 77
Leakage Per Mile of Main 109, 255
Leakage, How to Properly Estimate 131
Leakage, How to Estimate 183
Larned, J. W., News for 183
New Albany, Ind., Explosion at the Gas Works 77
Ponce de Leon Hotel, Injudicious Lighting Methods Adopted at the 130
Port Hope, Canada, Letter from 235

D.

Discounts, Is it Advantageous for Gas Companies to Allow, by A. V. Daniel 8
Daniel, A. V., as above 8
Dynamos, Steam for Drying Water Soaked 100
Distillation of Coal, L. T. Wright on 132
Directors, Board of, New England Association, Annual Report 135
*Dip-Pipe and Sealing Cup, the Lindsley Anti-Sealing 209
Day, F. W., on the Policy of Gas Companies as to Incandescent Electric Lighting 218
Derby Gas Company, Pumping Station of the, by C. H. Nettleton 295
Douglas, Prof. S. A., Letter from to Western Association 435

E.

Education, Technical 10
Electrical Photometry, J. Swinburne 69
Ether-Oxygen Lime Light, the, by F. E. Ives 70
English Coal Trade in 1887 72
Electricity, Observations on Atmospheric 100
Election of New Members, New England Association, 135; Ohio Association, 213; Western Association 343
Election of Officers, New England Association, 143; Ohio, 304; Western 429
Executive Committee, Ohio Association, Report of 213
Electric (Incandescent) Lighting, the Policy of Gas Companies as to, by F. W. Day 218
Engines and Gas Stoves, the First Cost of, by E. C. Gwyn 223
Electric Currents, the Heating of Wires by 255
Electric Light Discussion, Ohio Association, Reopened by Mr. Gwynn 259
Evanston, Ills., an Experience at 259
Experience with Choked Stand-Pipes, by M. Coombs, Jr. 266
Effect of Natural Gas on the Consumption of Coal Gas, by E. B. Philipp 308
Egner, F., Notes on the Use of Lima Crude Oil 295; on the Purification of Gas in Closed Vessels 377
Electric Arc Lighting, the Cost of, by C. M. Keller 386
Exhauster Working at Zero, Why Should the Gas Come Back through Bridge and Stand-Pipes, with 3½-inch Seal on Hydraulic Main 174

EDITORIALS—
Agency Opened in New York by Ball Engine Company 370
Butterworth, First Gun from, Ohio Association 1
Boston Meeting, New England Association 130
Blow, a Crushing 294
Brooklyn (N. Y.) Threatened with another Gas Company 334

E.—*Continued.*

EDITORIALS—*Continued.*
Contract, the Value of a State 66
Chicago "Camp" of the Western Association 294
Connelly Motor, the 294
Corson's (Miss Juliet) Lectures on Gas Cooking, New York 294
Dollar Mark, again the, at Cleveland, Ohio 98
Day, F. W., Death of 369
Echoes of '87, the 2
Entering Wedge, the, as to the Supply of Gas in Philadelphia, Pa 294
European Voyagers 294
Gas Investors and Gas Investments 33
Guild of Gas Managers, Seventh Annual Meeting of the 206
Gainesville, Texas, Mr. E. L. Hopper in Command at 370
Indianapolis, Ind., the Gas Agitation at 206
Literature, Some Recent Gas 170
Lowell (Mass.) almost at the Coveted Figure 370
Meter Company Annuals, the 34
Montreal (Can. Gas Company, Annual Meeting of the 350
Montreal, Destruction of a Gasholder at 369
Massachusetts Legislature, Recent Action of the 413
Nettleton, a Reminder from Secretary 65
Our Gallery, an Addition to 250
Odd Lots 250
Personal—A. W. Schleicher 34
Purchase and Sale, in the Instance of Coal Tar, the Difference between 334
Philadelphia Tar Contract, the 370
Portland (Me.) Gas Company, Annual Meeting of the 370
Pratt, Jno. C., Death of 414
Proposals for Supplying Illuminating Gas to Philadelphia, Pa 414
Reductions, a Chapter of 2
Ridgely, N. H., Obituary 97
Society of Gas Lighting, Annual Meeting 2
Society of Gas Lighting, Allotment of Papers, 1888 34
Sandusky Convention, the Coming 169
Sandusky Meeting of the Ohio Association 305
Syracuse (N. Y.) Gas Light Company, a Word about the 250
Upton, A. F., Death of 414
Western Association, Eleventh Annual Meeting of the 333
Winona (Minn.) Gas Company, Annual Meeting 334
White, Major T. F., Obituary 249

F.

Fires, Peculiar origin of 3
Furnace, the Wainwright Gas Smelting 102
Freezing Point of Glycerine and Water 170
Fuel Gas, by J. M. Critchlow 270
Fuel Gas, Walton Clark 379
Fires and Explosions from Natural Gas 371
Fuel, Combustion of in steam Boiler and other Furnaces 391
Furnaces, Half-Depth Regenerative by F. Bierce 429

G.

*Gas Blowpipe, the Lee 4
Gas Works, Storage Capacity of 5
*Gas Meters, an Improvement in 6
Gas Lamps, Some New Siemens 6
Gas Companies, Is it Advantageous for Such to Allow Discounts, by A. V. Daniel 8
Glass, Conductivity of 9
Gas Burners, Novelties in 10
Gas, Making Pig Iron with 41
Gas Commission, Annual Repot of Massachusetts 66
*Gas Hammer, the Robson-Pinckney 71
Gas and Its Contemporaries 70
Gas and Coke, Warming Houses by 74
Gas Meters, How to Test, C. W. Hinman 98
Glue, the Effective Use of 100
Gas Cannel, the Jellico 100
Gas Smelting Furnace, the Wainwright 102
Gas Rates at Cleveland, O., Decision of the Court in the Matter of Regulating 105
Gas Light and Coke Company, the 131
*Glycerine and Water, Freezing Point of 170
Gas Engine, How will it Work to supply Power for an Electric Light plant; and what is its Economy as compared with Steam Engine? 175
*Gerdenier, C. A., Relates his Experience with Coal Tar and the Walker Tar Extractor 176
Gas, Why People Do not Use it 207
Gas Meter, an Automatic Prepayment 207

253633

INDEX TO VOL. XLVIII.

C.—*Continued.*

Gas Companies, Policy of as to Incandescent Electric Lighting, F. W. Day 218
Gas Stoves and Engines, First Cost of, by E. C. Gwyn 223
Gwyn, E. C., as above 223
Graeff, G. W., on Incandescent Burners 262
Gratzel's Magnesium Lamp 311
Gas for the Working Classes 372
*Gimper, J., on the Claus Process of Purification in Closed Vessels 384
*Gas Company Accounts, J. D. Thompson 425

H.

*Hale's Self-Adjusting and Combined Wrench 39
*Hammer, the Robson Pinckney Gas 71
*Hinman, C. W., on How to Test Gas Meters, 98; on Photometric Gas Testing 335
*Heating Railway Cars by Gas, the Timlin-Heidinger System of 103
*Hydrocarbon Burner, the Arvine 104
*Hydrocarbon Oil Burner, the Cummings 104
Harbison, J. P., Address to New England Association 136
High Candle Power Burners, Introduction of, by H. A. Allyn 137
Humphreys, C. J. R., on a New Way of Utilizing Ammonia Liquor 145
How, Jas., Death of 184
Heating of Wires by Electric Currents 255
Half-Depth Regenerative Furnaces, F. Bierce 429
Honorary Members, Election of, How to Proceed in, Western Association 429

I.

Illuminating Power of Arc Lamps 8
Incandescent Lamps, with a Note on the Conductivity of Glass 9
Insulation and installation, Proper 3
Iron, Making Pig with Gas 41
Ives, F. E., on the Ether-Oxygen Lime Light 70
Introduction of High Candle Power Burners, by H. A. Allyn 137
Items from a Superintendent's Note Book, by W. A. Wood. 140
Illumination and Candle Power, Report from Committee on to New England Association 171
Invitation from Mr. Ridlon to New England Association ... 172
Invitation from Western to New England Association 179
*Improved Pentane Lamp 251
Incandescent Gas Lighting, Few Words on, G. W. Graeff, Jr 262
Incandescent Electric Lighting, Policy of Gas Companies as to, F. W. Day 218
Incandescent Gas Lighting 296
Institute, on the Proposed formation of a, Report of Committee on to Western Association 346
Imperial Continental Gas Association and Electric Lighting 372
Inventions, Two New 373
*Inclined Retorts, H. Pratt 421
Items of Interest from Various Localities 10, 41, 74, 106, 132, 179, 209, 252, 297, 339, 373, 415

J.

Jellico Gas Cannel 100
Jellico Colliery, Map Giving Location of 101
Jones, N. W., Memorial on, Western Association 426

K.

Kerosene, Use of in Preventing Formation of Scale in Boilers, F. L. Lyne 41
Kerosene, Fire Test for 41
Keller, C. M., on the Cost of Arc Electric Lighting 386

L.

*Lee's Gas Blowpipe 4
Liming Coal Process, the Patent, R. P. Spice 36
Lyne, F. L., on How to Prevent Formation of Scale in Boilers 39
Lime Light, the Ether-Oxygen, F. E. Ives 70
Lime, Gas, Value of 73
Light Giving Properties of Coal Gas 102
Liquor, Ammonia, New Way of Utilizing, C. J. R. Humphreys 145
Lime not Freshly Slacked, will It Purify as Much Gas per Bushel as the Newer Article 113
*Lindsley's Anti-Sealing Dip-Pipe and Sealing Cup 209
Letters of Regret, New England Association, 135; Ohio 213
Lima Crude Oil for Carburetting Water Gas, G. H. Christian, Jr 215
Lima Crude Oil, Notes on the Use of, F. Egner 295
Lindsley, E. Personal Experiences with Naphthaline, 304; Incandescent Gas Burners 424
*Ladle, the Nicholson Lead 338
Lecture on Photometric Standards, by Prof. Mendenhall 431

M.

*Meters, an Improvement in Gas 6
Manufacture of Coke, Fifty Years' Progress in the 35
Motor Prizes, the, Society of Arts 34
Massachusetts Gas Commission, Annual Report of 66
Mendelejef's, Prof., Theory about the Origin of Petroleum. 72
*Map of the Jellico Company's Cannel Mines 101
Memorial Committees, Reports of, New England Association, 179; Western 426
Mouthpiece Joint to the Stand-Pipe, Is It Safe to Make before Starting a Fire in the Bench 175

M.—*Continued.*

Meter, an Automatic Gas 207
Methods of Inducing Non-Consumers to Use Gas, J. W. Alexander 221
Management of Small Works, P. J. Wood 225
Magnesium Lamp, the Gratzel 311
McMillin, E., Address to Western Association 343
Meters, Gas, Maximum Service that Should be Required from the Various Standard Sizes of, Wm. McDonald 420
McDonald, W., as above 420
*Montreal, Can., Destruction of a Gasholder at, Two Plates. 418
Mendenhall, T. C., Professor, Lecture on Photometric Standards 431
Market for Gas Securities, the 14, 46, 78, 110, 149, 184, 227, 272, 312, 348, 392, 437

N.

Notes from the West, by Retort 44, 149
New England Association of Gas Engineers, XVIII. Annual Meeting of ..... 135 to 149, to 171
Non-Consumers, How to Induce Them to Use Gas, J. W. Alexander 221
Nettleton, C. H., on Pumping Station of the Derby Gas Company 295
Notes on the Use of Crude Oil, F. Egner 295
Naphthaline, Personal Experiences with, E. Lindsley 304
Natural Gas and Its Effects on the Consumption of Coal Gas, E. B. Philipp 309
Natural Gas Field, Straw from the 311
*Nicholson's Lead Ladle 338
Natural Gas Fires and Explosions 371
New Haven, Conn., Cheaper Gas for 418

O.

Origin, Peculiar, of Fires 3
Oxygen-Ether Lime Light, F. E. Ives 70
Origin of Petroleum 72
Oxide of Iron, "Weldon Mud" as a Substitute for in Gas Purification 73
Observations on Atmospheric Electricity 100
*Oil Burner, the Cumming Hydrocarbon 104
Obituary Mention—B. H. Bartol, Jas. How 184
Ohio Gas Light Association, IV. Annual Meeting, Official Report ..... 213 to 220, 256 to 271, 301 to 310
Our Future Prospects, Thos. Wood 306

OFFICIAL NOTICES, ETC.—
New England Association, 65; Ohio Association, 1, 129, 169; Western Association, 129, 169, 205, 249, 293; American Association 293

OFFICIAL REPORTS—
New England Association, 135, 171; Ohio Association, 213, 256, 301; Western Association, 342, 377 ..... 4 0

P.

Patent Coal Liming Process, R. P. Spice 36
Parliamentary Returns Relating to English Gas Undertakings 9
Pig Iron Made with Gas 41
Photometry, Electrical, J. Swinburne 69
*Pinckney-Robson Gas Hammer 71
Petroleum, Prof. Mendelejef's Theory about the Origin of. 72
Product Market, the English 73
*Pipe in Trenches, Apparatus for Lowering and Lifting 104
Presidential Addresses, New England Association, 136; Ohio, 214; Western 343
*Providence, R. I., Leakage Experience at 177
Purifying Room Experiences, Col. F. S. Benson 179
*Poughkeepsie Gas Works, Tar Firing at, Jno. Tracy 208
Pipes, Steam, Size of 212
Progress in the English Gas Industry 307
Printz, E., Address to Ohio Association 214
Policy of Gas Companies as to Incandescent Electric Lighting, F. W. Day 219
*Pentane Lamp, the Improved 251
Purification in Closed Vessels, G. S. Page 267
Page, G. S., as above 267
Petroleum Oil Fuel Tests at the Salem Pumping Station, Beverly, Mass 271
Pumping Station of the Derby Gas Company, C. H. Nettleton 295
Place of Next Meeting, Naming, Ohio Association, 304; Western Association 421
Poisonous Properties of Carbonic Oxide 296
Prospects, Our Future, Thos. Wood 306
Philipp, E. B., Effects of Natural Gas on the Consumption of Coal Gas 308
*Photometric Gas Testing, C. W. Hinman 335
Portland (Me.) Gas Matters 347
Paris, France, Gas Affairs at 372
Purification of Gas in Closed Vessels, F. Egner 377
*Paradoxical Box, B. E. Chollar 383
*Purification of Gas in Closed Vessels, the Claus Process of, John Gimper 385
*Pratt, H., on Inclined Retorts 421
Photometric Standards, Prof. Mendenhall on 1
Printing the Papers in Advance, Western Association 4 6
Petroleum Engine, a New 436

Q.

Question-Box, New England Association 173

R.

Regulating Gas Rates at Cleveland, Ohio, Decision of Circuit Court in the Matter of 105
*Railway Cars, the Timlin-Heidinger System of Heating ... 103
Roll Call, New England Association, 135; Ohio, 213; Western 343
Ryder, Dr. W. H., Death of 210
Residuals Market, the English 307
Reporting the Proceedings, in the Matter of, Ohio Association 310
Regenerative Furnaces, Half-Depth, F. Bierce 429
*Retorts, Inclined, H. Pratt 421

S.

Scrap, Using up the 44
Storage Capacity of Gas Works 5
Siemens Gas Lamps, Some New 6
Sulphate Manufacture, an "Accident" in 10
Society of Arts, Motor Prizes 34
Spice, R. P., on the Patent Coal Liming Process 36
Sulphur Compounds, New Method of Removing from Coal Gas 67
Swinburne, J., Electrical Photometry 69
*Self-Luminous Buoy 72
Steam for Drying Water-Soaked Dynamos 100
Smelting Furnace, the Wainwright Gas 102
Sewer Ventilation by Means of Coal Gas 131
Superintendent's Note Book, Items from a, W. A. Wood 140
Small Gas Works, the Running of, by J. R. Todd 143
Snow, W. H., on a Vagary of Naphthaline 147
Scrubbers and Condensers, Suggesting a Remedy for the Accumulation of Solid Matter in the Outlet Pipes to 175
Semi-Annual Meeting, New England Association 178
Smoke and Fog, Effect of on the Consumption of Gas in England 207
*Sealing Cup and Anti-Sealing Dip-Pipe, the Lindsley 209
Steam Pipes, Size of 212
Sulphate Making in Small Works 296
Standard Candle, Vagaries of the 216
Sunday Labor in Gas Works 297
Stoppages of Ascension Pipes, E. J. Barnfield 310
St. Louis, Mo., Gas, Fuel and Power Company, Possible Violation of its Charter 338
Supply of Air to Boiler Furnaces 347
Steam Boiler and other Furnaces, Combustion of Fuel in ... 391
Standard Sizes of Meters, Maximum Service that Should be Required from, W. McDonald 420
Standard System of Gas Company Accounts whereon to Base Comparisons, Appointment of Committee by Western Association to Devise 429

T.

Technical Education 10
Test for Firing Point of Kerosene 41
Testing Gas Meters, by C. W. Hinman 98
*Timlin-Heidinger System of Heating Railway Cars 103
Treasurer and Secretary, Reports of, New England Association, 135; Ohio, 213; Western 346
Todd, J. R., on the Management of Small Works 143
*Tar, Coal, an Experience with and the Walker Tar Extracter, C. A. Gerdenier 176
*Tar Firing at the Poughkeepsie Gas Works, Jno. Tracy ... 208
Tracy, Jno., as above 208
*Testing Gas, Photometric, C. W. Hinman 335
Tinting Calcimine, How to Vary Color in 410
Thompson, J. D., Gas Company Accounts 426

U.

Using Up the Scrap 44
Utilizing Ammonia Lipuor, a New Way of, C. J. R. Humphreys 145
Upton, A. F., Death of 414

V.

Ventilating Sewers by Means of Gas 131
*Vagary of Naphthaline, W. H. Snow 147
Votes of Thanks, New England Association, 178; Ohio, 310; Western 436

W.

*Wrench, Brock's Chain 30
*Wrench, the Hale Self-Adjusting Combined 39
Weldon Mud as a Substitute for Oxide of Iron 73
Warming Houses by Means of Gas and Coke 74
Wainwright's Gas Smelting Furnace 102
Wright, L. T., on Coal Distillation 131
Welding and Brazing by Coal Gas 131
Wood, W. A., Items from a Superintendent's Note Book ... 140
*Walker Tar Extractor and an Experience with Coal Tar, C. A. Gerdenier 176
Water Gas, Carburetting by Means of Lima Crude Oil, G. H. Christian, Jr 215
Wood, P. J., on the Management of Small Gas Works 225
Wires, the Heating of by Electric Currents 255
Wilkiemeyer, H., on the Legality of Making More than One Year Contracts with Cities 256
Wood, T., on the Future Prospects of Gas Works 306
*Waterhouse Arc System 338
Working Classes, Gas for the 373

Y.

Yearly Contracts, the Legality of Making Greater than by Ohio Gas Companies, H. Wilkiemeyer 256